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Authority NND 735022
By DW NARA Date 9 Dec 22

File Test Section, Infantry Board

REPORT

of

The Infantry Board

No. 1651

TEST OF ROCKET, 2.36" (WP) T26E2 AND ROCKET, 2.36" (HE) M6A3.

FORT BENNING, GEORGIA

20 July 1944.

24725—Benning, Ga., 9-16-42—2,000

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IB-471.94

20 JUL 1944

SUBJECT: Test of Rocket, 2.36" (WP) T26E2 and Rocket, 2.36" (HE) M6A3.

TO: The Chief, Ground Requirements Section, Headquarters Army Ground Forces, Army War College, Washington, D. C.

1. Authority and Purpose:

a. Tests of the subject rocket were initiated without specific written directive from higher authority upon receipt of the material, in accordance with oral arrangements with the Infantry Branch, Developments, Ground Requirements Section, Headquarters Army Ground Forces (Appendix "A"). Formal written directive was furnished in 2nd Ind., Ground Requirements Section, Headquarters Army Ground Forces, 23 June 1944, 471.94 (R) (8 Jun 44) GNRQT-11/87711, on letter, Office of the Chief of Ordnance, 8 June 1944, O.O. No. 471.94/2070, Attention SPOTU, Subject: Rocket, Smoke, WP, 2.36", T26E2. (Appendix "C")

b. (1) This is a final report. Preliminary report on the T26E2 rocket (WP) was rendered to the Chief, Ground Requirements Section by teletype on 26 June 1944, stating that:

(a) The reliability of the fuse is excellent.

(b) The fuse is not unduly sensitive.

(c) The ballistic performance is slightly superior to that of former models.

(2) The primary purpose of the tests was to check the reliability, safety and performance of the fuse prior to full-scale production. (Appendix "C") Other phases of the tests pertaining to accuracy and stability in flight were incidental to the main phase and are reported upon herein for the purpose of completing the picture.

(3) Tests of the HE Rockets, M6A1 and M6A3 were included for purposes of comparison, since the tail and fin assemblies (except the fuse) of those rockets are identical, respectively, with the corresponding parts of the WP Rockets T26 and T26E2, and because the M6A3 Rocket (HE) had not been previously tested by The Infantry Board.

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2. Description of Material: a. The subject Rocket, 2.36", WP, T26E2, differs in outward appearance from the model (T26) previously tested and recommended by this Board chiefly in that it has the new circular fin, generally similar to that of standard rifle grenades, instead of the longitudinal multiple-vane type of the earlier model. Since the circular fin is considerably shorter, the whole rocket is correspondingly shortened by about two inches. (Test No. 1; Figure 3, page 18) The fuse assembly differs only slightly in the shape of the striker (blunt-pointed) and the character of the primer. It is slightly lighter in weight. A slight difference in the manner of sealing the detonator has been made. (Test No. 3; Fig. 2, p. 17)

b. The new HE Rocket (HE M6A3) differs from the model formerly tested by this Board principally in that:

(1) It has the circular fin in place of the longitudinal vane type.

(2) It has an ogive with a blunt, rounded nose, instead of the tapered, pointed ogive.

(3) The aluminum disc separating the striker from the primer is perforated.

3. Factual Background.

a. The development of a white phosphorus body for this Rocket, 2.36", was in line with a general requirement set up by Army Ground Forces calling for a white phosphorus projectile for each Infantry weapon firing or launching a high-explosive, fragmentation projectile. The objective was a combination projectile which, in addition to a screening effect as smoke, also would have a casualty-producing effect against hostile personnel in fox-holes, trenches and other cover rendering them largely immune to the effects of light fragmentation shell. The original of such W.P. rocket (Rocket, 2.36", W.P. T26) was tested by The Infantry Board and found highly satisfactory for all the above purposes, and especially effective for use against the openings of pill-boxes and bunkers. (Report of The Infantry Board No. 1546.) The subject Rocket, 2.36", W.P., T26E2 represents normal development in design over the original, paralleling that for the high explosive companion item, the Rocket, 2.36", M6A1.

b. The original high explosive item, Rocket, 2.36", M6A1, was found to be unreliable in functioning when impinging on soft ground or when the angle of impact was acute. This deficiency was due to one or all of the following:

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Fuze too insensitive.
Ogive too pointed.
Instability in flight.

The subject Rocket, H.E., 2.36", M6A3, now standard but not previously tested by The Infantry Board, incorporates changes over the former model to remedy this defect.

4. Facts Found. The essential facts developed by the current tests (See attached Record of Test) are:

a. Both of the subject rockets, 2.36", (W.P. T26E2 and H.E. M6A3) are suitable for use with standard launchers, and are slightly lighter in weight and less in bulk than the respective preceding models. (Test No. 1; Fig. 3, page 18)

b. The fuze sensitivity of the subject Rocket, 2.36", W.P. T26E2, is approximately equal to that of the former model, T26, (Test No. 2) and is safe for normal handling.

c. The subject Rocket, 2.36", W.P. T26E2, is more stable in flight than the former model T26, and is substantially equal to it in accuracy at flat-trajectory ranges (Test No. 4).

d. The subject Rocket, 2.36", W.P. T26E2 has slightly less dispersion and substantially greater range for high-angle (mortar type) fire than the former model T26. (Test No. 5)

e. The subject Rocket, 2.36", W.P. T26E2 is sufficiently accurate if properly aimed to be approximately 60% effective against small openings in pill-boxes or other similar structures at ranges up to 100 yards. (Test No. 6)

f. The subject Rockets, 2.36", W.P. T26E2 function reliably on impact with the surface of the ground at all angles not extremely flat. (Test No. 7)

g. The subject Rocket, 2.36", W.P. T26E2 functions reliably on impact against soft surfaces. (Test No. 8)

h. The subject H.E. Rocket, 2.36", M6A3 is more positive in its functioning against oblique or soft surfaces, than the former model M6A1. (All tests)

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i. The fuze of the subject H.E. Rocket, 2.36" M6A3 is more sensitive than that of the former model, M6A1, but is still not as sensitive as demanded for reliability of functioning and permitted by ordinary safety considerations. (All tests)

5. Discussion. a. Since the former model of the 2.36" WP Rocket (T26) was found wholly satisfactory for all purposes and since the subject model of it (M26E2) is equal to it in all respects and superior to it in stability, accuracy and range, there seems to be no room for criticism of the latter. It is a thoroughly satisfactory munition of its type.

b. The new model high-explosive rocket (M6A3) is also a definite improvement in all respects over its precursor, the M6A1 rocket, which is very erratic in flight and unreliable in functioning. This projectile was originally designed as an antitank weapon, with no consideration given in the design to its functioning against soft surfaces. Experience since, however, has disclosed that it has an extremely important effect as an anti-personnel, fragmentation shell, especially when launched at high angles in mortar fashion; but for this purpose the comparatively insensitive fuze and the pointed nose often failed to produce detonation on impact on the ground and a large proportion of the projectile's intrinsic effectiveness in combat was thus lost. In the present model (M6A3) the improved fin helps to insure nose-on impact, and the blunt, rounded ogive tends to insure more abrupt deceleration on impact against soft surfaces. Both of these factors tend to improve reliability, and, with a fuze as sensitive as that of the Rifle Grenade M9A1, it should be substantially as reliable as the latter. However, these tests show that it is still far from that goal. As is well known, the M9A1 Rifle Grenade rarely fails to detonate even when the ground is soft or the angle of incidence acute. The subject 2.36" Rocket, M6A3, is still regrettably unreliable in this respect. Evidently the fuze is too insensitive, or the ogive is still not sufficiently abrupt. For full usefulness it should be further improved.

6. Conclusions. The Infantry Board concludes:

a. That the subject Rocket, 2.36", W.P., T26E2, is superior to the present Rocket, 2.36", W.P., T26, and is satisfactory for Infantry use.

b. That the subject Rocket, 2.36", H.E., M6A3, is superior to the former model, M6A1, but is still unsatisfactory in reliability under various conditions.

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7. Recommendations. The Infantry Board recommends:

a. That the subject Rocket, 2.36", W.P., T26E2 be adopted as standard in lieu of the Rocket, 2.36", W.P., T26.

b. That the Rocket, 2.36", H.E., M6A3 be further improved by providing it with a blunter ogive and a more sensitive fuse.

INGOMAR M. OSETH,
Colonel, Infantry,
Director.

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RECORD of TEST

ON

ROCKET, 2.36", (W.P.) T26E2

TEST SECTION
THE INFANTRY BOARD

FORT BENNING, GEORGIA

**TO: THE DIRECTOR, THE INFANTRY BOARD.
HEREWITH DETAILED RECORD OF TESTS
RELATING TO THE ABOVE PROJECT.**

CHIEF, TEST SECTION

8 Copies.

Copy No. 6

Date 29 JUNE 1944

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By DW NARA Date 9 Dec 22

TEST SECTION
THE INFANTRY BOARD
FORT BENNING, GEORGIA

29 JUNE 1944

SUBJECT: REPORT OF TEST OF ROCKET, 2.36", (W.P.) T26E2

TO: THE PRESIDENT, THE INFANTRY BOARD, FORT BENNING, GEORGIA

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By DW NARA Date 9 Dec 22

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1. Authority and References:

a. Authority: Memorandum (IB 471.6) The Infantry Board, 13 June 1944. Appendix "A".

b. References:

(1) Teletype (TT9128) Rogers Ordnance Assembly Plant, Edgewood Arsenal, Maryland, 10 June 1944. Appendix "B".

(2) Memorandum Report, #1546, The Infantry Board, 15 December 1943.

(3) Memorandum, (IB 471.94) The Infantry Board, 26 June 1944. Appendix "C".

(4) Letter, (OO 471.94/2070) The Office of Chief of Ordnance, Washington, D. C., 8 June 1944, with 2 indorsements. Appendix "D".

2. Introductory Information.

a. The Rocket, 2.36" (W.P.) T26E2 is a white phosphorus head affixed to the tail assembly and motor tube of the Rocket, 2.36", M6A3. A modified fuze assembly is employed with this combination. Figure 1 shows the T26E2 head as compared to the M6A3 head. Figure 2 shows the fuze assemblies of the T26E2 and the M6A3 as well as those of the T26 and the M6A1 rockets.

b. The Rocket, 2.36" (W.P.) T26E2, it is understood was designed to give greater stability and resultant accuracy, because of the new ring type stabilizing fins, than does the Rocket, 2.36" (W.P.) T26. Also, some change in sensitivity was expected due to the modification of the fuze assembly.

c. Throughout the tests, for the purpose of comparison, the M6A1, M6A3, T26 and T26E2 rockets were used. Figure 3 shows the four types of rockets used.

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3. Purpose of Tests.

To determine:

a. The comparative physical characteristics of the T26E2, T26, M6A1 and M6A3 rockets.

b. Fuze sensitivity of the four types of rockets.

c. The physical components and construction of the fuze assemblies of the four types of rockets.

d. The relative accuracy of the various types of rockets when fired at 50, 100 and 150 yards.

e. The relative dispersion of the four types of rockets when fired at long range.

f. The probability of hitting small point targets (Example: Aperture of pill-box or bunker) at short ranges, using the T26E2 rocket.

g. The comparative reliability of functioning of the four types of rockets when fired at flat angles so as to strike only a glancing blow.

h. The comparative reliability of the four rockets when fired against vertical targets having a soft surface.

i. The difference, if any, between the backblast of the T26E2 and the other rockets.

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4. Details of Tests and Results.

Test No. 1.

a. Purpose: To determine the comparative physical characteristics of the T26E2, T26, M6A1 and M6A3 rockets.

b. Method: By weighing, measuring, and inspecting the various rockets.

c. Results:

(1) Table below:

	T26E2	T26	M6A1	M6A3
Length (inches)	17.0	19.0	21.6	19.2
Tail Assembly (type of)	Ring	Straight fin	Straight fin	Ring
Weight of head w/fuze (lbs)	1.65	1.72	1.70	1.65
Weight of motor tube, complete (lbs)	1.70	1.80	1.80	1.70
Total weight (lbs)	3.35	3.52	3.50	3.35

(2) The striker, motor tube, and tail assembly of the T26E2 and the M6A3 are interchangeable as far as could be determined.

(3) Figure 3 shows the comparative lengths of the four rockets.

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Test No. 2.

a. Purpose: To determine fuse sensitivity of the four types of rockets.

b. Method: Rockets were dropped nose first, by remote control, from measured heights onto various types of surfaces.

c. Results:

(1) The two types of W.P. rockets were equally sensitive at all heights on all types of surfaces.

(a) On hard surfaces 90% of both types would detonate if dropped 3 feet. On the same hard surface approximately 40% would detonate if dropped 2-1/2 feet. None would function at 2 feet and lower.

(b) On sandy or muddy surfaces a drop of 4 feet and higher was needed to detonate either W.P. rocket. Here too, the two types functioned equally reliably.

(c) Neither type functioned if dropped so as to hit other than nose first at heights up to 6 feet.

(2) The two types of H.E. rockets were less sensitive than the W.P. rockets.

(a) The M6A3 did not detonate consistently at heights under 4 feet even on firm surfaces (i.e., steel plate).

(b) The M6A1 rocket did not detonate more than 50% of the time when dropped 5 feet onto a steel plate. Examination of M6A1 rockets which failed to detonate disclosed that the ogive was bruised and slightly dented, the disk between the striker and primer was pierced and in some cases the primer had been slightly cut. Apparently the slight crumbling of the ogive absorbed enough of the blow to cause the fuse not to function.

(c) In soft sand or mud the M6A3 is more dependable than is the M6A1, but both are less sensitive than are the W.P. rockets.

(3) Firing throughout the accuracy tests substantiated the results enumerated above, i.e., in all cases the W.P. rockets are more sensitive than the H.E. rockets.

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Test No. 3.

a. Purpose: To determine the physical components and construction of the fuse assemblies of the four types of rockets.

b. Method: One of each type of fuse was disassembled and the differences noted.

c. Results:

(1) Figure 2 shows fuzes disassembled.

(2) The T26E2 assembly consists of the following parts:

(a) The sharp-pointed striker.

(b) The creep spring.

(c) The primer and detonator unit.

(3) The T26 assembly has the following parts:

(a) The blunt, hammer-point striker. See Figure 2.

(b) The creep spring.

(c) The primer resembles a #8 shotgun primer in external appearance.

(4) The M6A1 and the M6A3 assemblies both have the following parts:

(a) The sharp-pointed striker.

(b) The long, thin creep spring.

(c) The aluminum cap or disk between striker and primer.

(d) The thin foil-like striker.

(e) The aluminum disc between striker and booster. This disk is solid in the M6A1 but has a 3/32" hole in its center in the M6A3. See Figure 2.

(f) A paper disk between the aluminum disk and the booster pellet.

(g) The booster pellet (difference in color).

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(h) The booster cuplike container.

(5) The type primers used in the T26 and the T26E2 differs, how this might affect sensitivity could not be determined by examination.

(6) The burster charge of the T26 is sealed into the head and is not physically attached to the primer. The primer and burster of the T26E2 are a unit. Figure 4 shows the two W.P. rocket heads.

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A B C

2.36" Rockets

A. T26E2 head on left.

B. M6A3 head in center.

C. Motor tube and tail assembly which is used with each.

Figure 1

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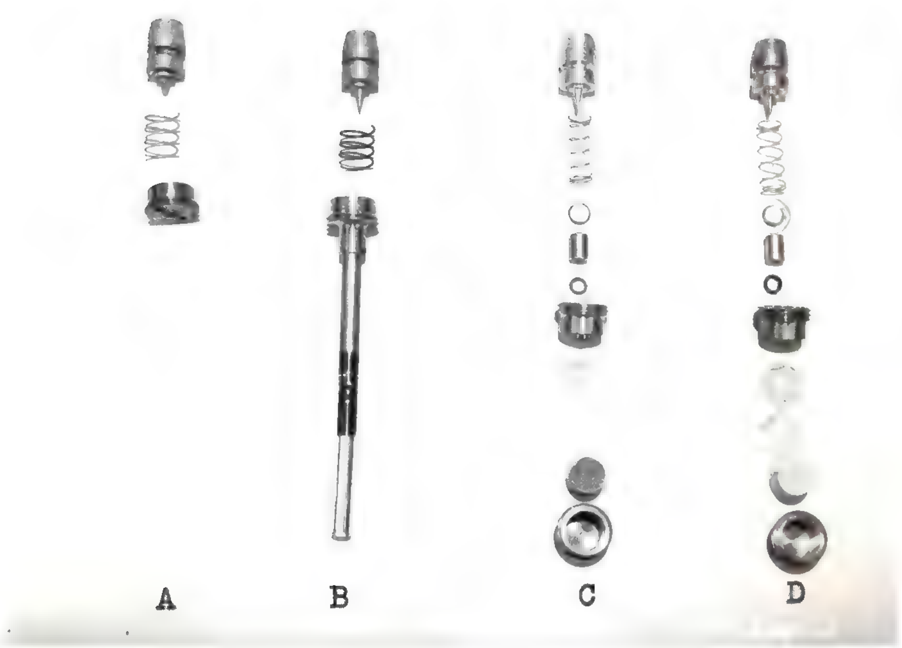

Fuze Assemblies

A. T26. Note: Blunt striker.

B. T26E2.

C. M6A1.

D. M6A3. Note: Hole in disk between primer and booster.

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Figure 2

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A B C D

2.36" Rocket Complete

A. T26E2.
B. T26.
C. M6A3
D. M6A1

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Figure 3

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W. P. Rockets

T26 on left, burster is sealed into the head.

T26E2 on right has tube into which the burster fits.

Figure 4

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Test No. 4.

a. Purpose: To determine the relative accuracy of the various types of rockets when fired at 50, 100 and 150 yards.

b. Method: Alternate 5 shot groups of each rocket were fired by one gunner, using a machine rest and checking the launcher between shots.

c. Results:

(1) Both the ring type rockets, i.e. the M6A3 and the T26E2 were more stable in flight than were the M6A1 and the T26. The M6A1 and the T26 rockets sometimes oscillated or wobbled so as to be very erratic; concrete evidence of this could be seen in many cases where the rockets went through the target sideways.

(2) Both of the W.P. rockets seemed to be more stable than their H.E. counterparts.

(3) Shot groups are plotted on succeeding pages, Figures 5 through 17.

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RECOR[illegible]RING

THE INFANTRY SCHOOL
DEPARTMENT OF EXPERIMENT

FORT BENNING, GEORGIA

__________193__

PROJECT__________

TEST OFFICER__________ GUNNER__________

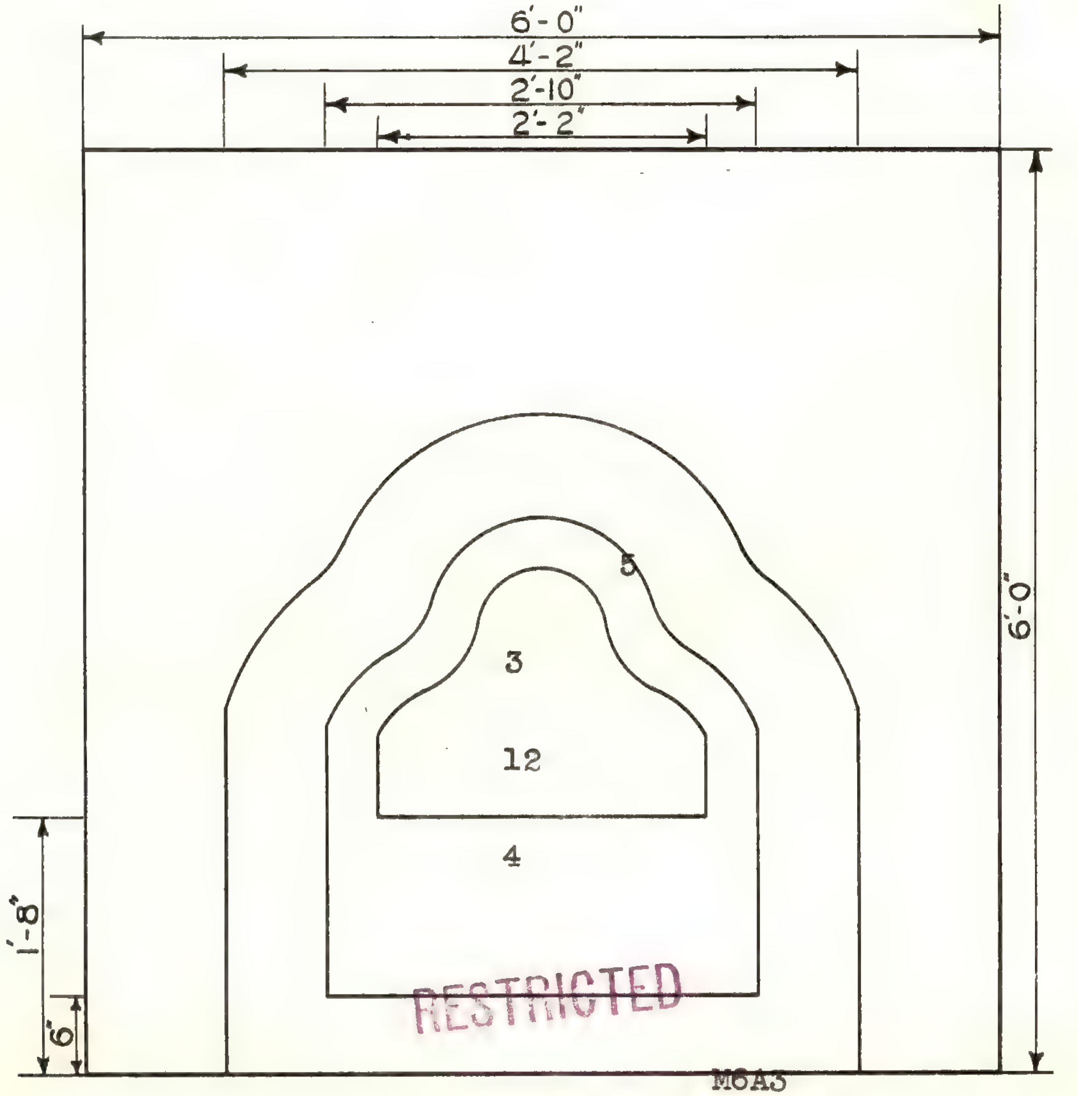
WEAPON__________ ACCESSORIES__________

AMMUNITION__________ LOT NO.__________

LIGHT__________ WEATHER__________ WIND { M. P. H.__________ / O'CLOCK__________ }

5'S	4'S	3'S	2'S	0'S

SCORE MEAN RADIUS______IN.



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TARGET D

M6A3
50 yds.

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RECOR[...]IRING

TEST SECTION

THE INFANTRY BOARD

FORT BENNING, GEORGIA

____________ 19 ___

PROJECT ________________________

NAME ________________ RANGE ________

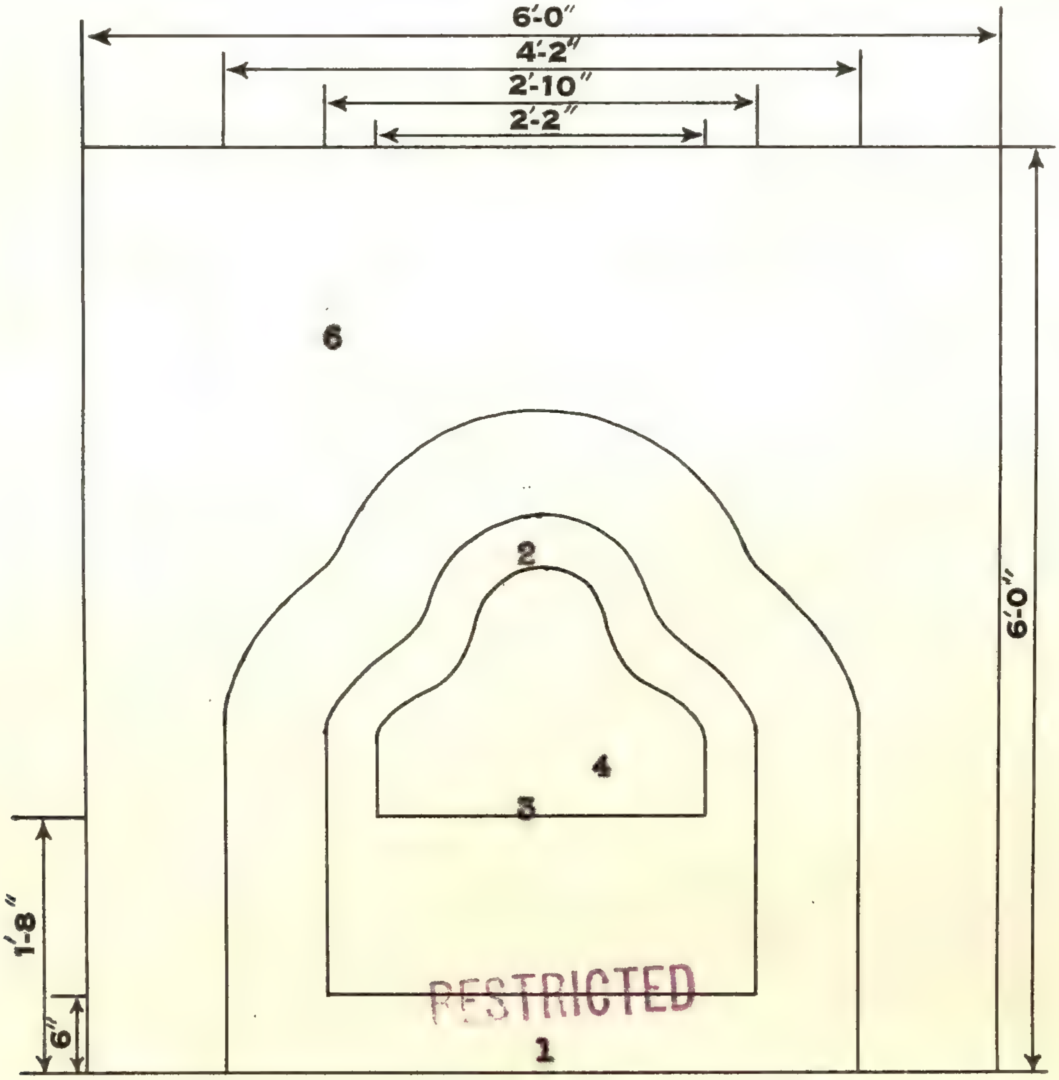
WEAPON ____________ TARGET NO. ______ ORDER NO. ______

AMMUNITION ____________ LOT NO. ____________

LIGHT ________ WEATHER ________ WIND { M. P. H. ______ O'CLOCK ______

5'S	4'S	3'S	2'S	0'S	SCORE

VERTICAL DISP. ______ IN.
HORIZONTAL DISP. ______ IN.
MEAN RADIUS ______ IN.



TARGET D

-22-

5 (3 ft. short of target) M6A3 100 rds.

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RECORD OF TEST FIRING

TEST SECTION

THE INFANTRY BOARD

FORT BENNING, GEORGIA

______________ 19 ___

PROJECT ______________________________

NAME ______________________ RANGE ____________

WEAPON ____________________ TARGET NO. ________ ORDER NO. ______

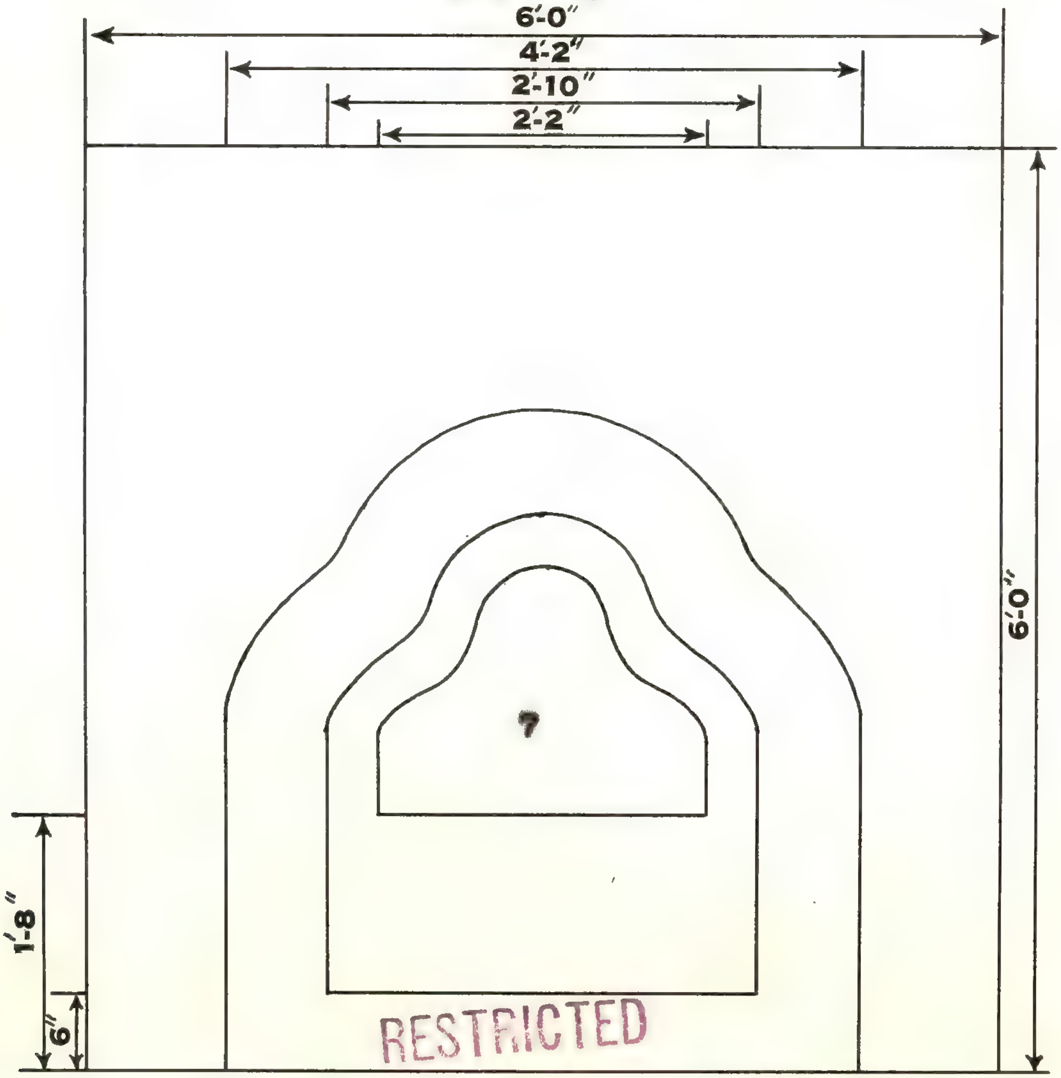
AMMUNITION ________________ LOT NO. ______________________

LIGHT ____________ WEATHER ____________ WIND { M. P. H. ________ / O'CLOCK ________ }

5'S	4'S	3'S	2'S	0'S	SCORE

VERTICAL DISP. ________ IN.
HORIZONTAL DISP. ________ IN.
MEAN RADIUS ________ IN.

3 5 6



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TARGET D

MSAS
150 yds.

1 2 4

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RECOR[illegible]FIRING

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THE INFANTRY BOARD

FORT BENNING, GEORGIA

______________ 19 ___

PROJECT ______________________________

NAME ______________________ RANGE ____________

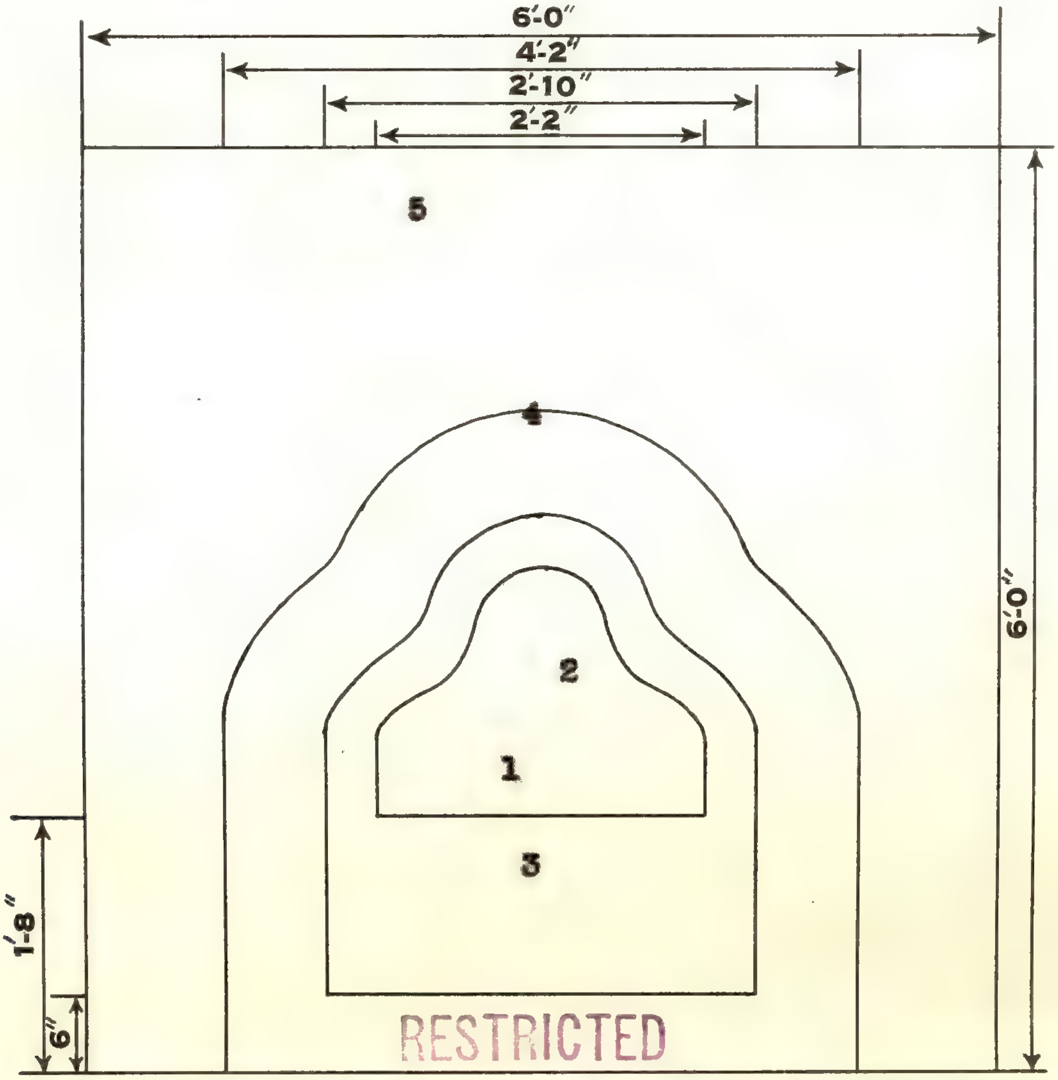
WEAPON ____________________ TARGET NO. ________ ORDER NO. ________

AMMUNITION ________________ LOT NO. ____________

LIGHT __________ WEATHER __________ WIND { M. P. H. __________ O'CLOCK __________

5'S	4'S	3'S	2'S	0'S	SCORE

VERTICAL DISP. __________ IN.
HORIZONTAL DISP. __________ IN.
MEAN RADIUS __________ IN.



TARGET D

M6A 3
150 yds.

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R COR [illegible] RING

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THE INFANTRY BOARD

FORT BENNING, GEORGIA

__________ 19 ___

PROJECT __________

NAME __________ RANGE __________

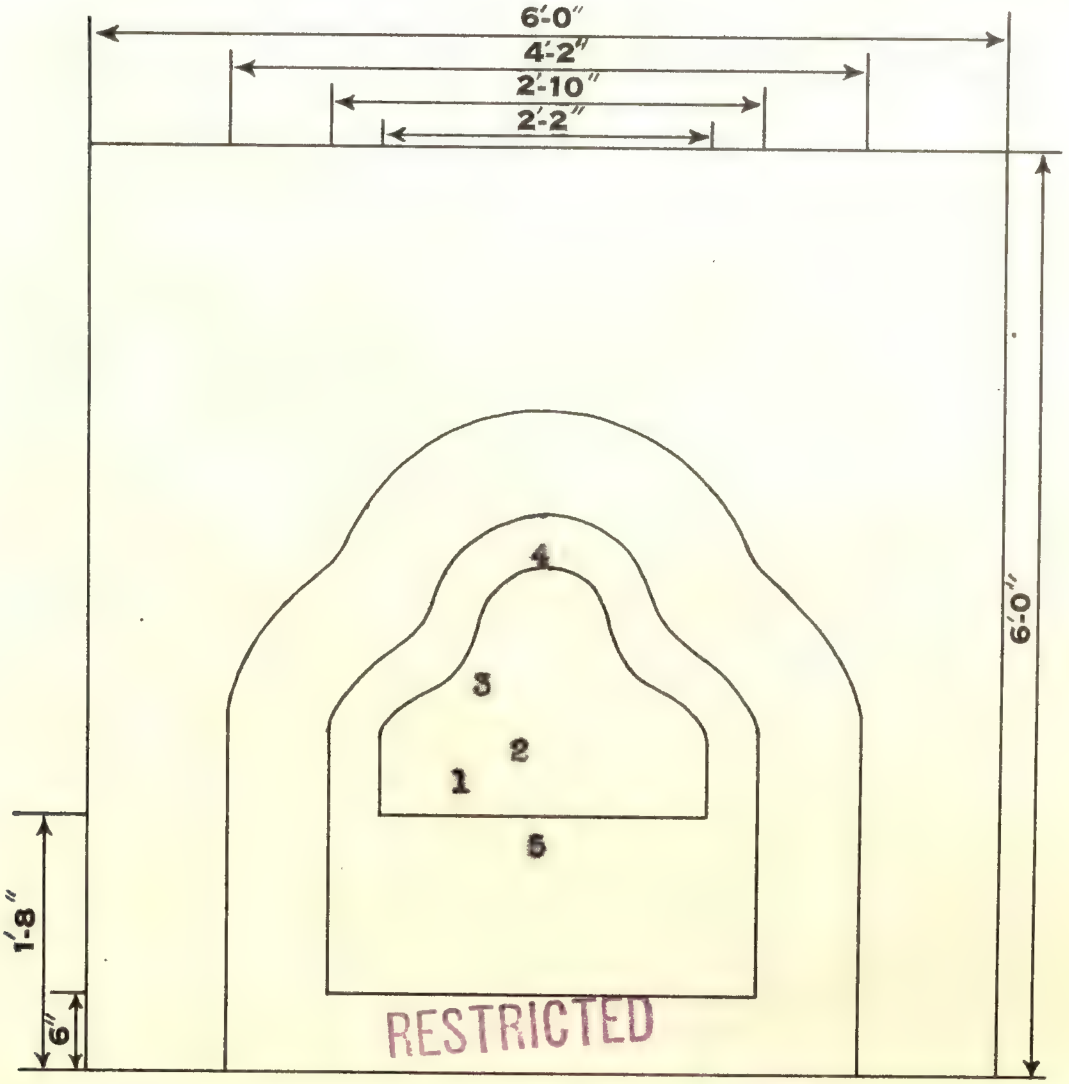
WEAPON __________ TARGET NO. _____ ORDER NO. _____

AMMUNITION __________ LOT NO. __________

LIGHT __________ WEATHER __________ WIND { M. P. H. __________ O'CLOCK __________

5'S	4'S	3'S	2'S	0'S	SCORE

VERTICAL DISP. __________ IN.
HORIZONTAL DISP. __________ IN.
MEAN RADIUS __________ IN.



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TARGET D

T26E2
50 yds.

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RECOR[D OF F]IRING

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THE INFANTRY BOARD

FORT BENNING, GEORGIA

______________ 19 ___

PROJECT ______________________________

NAME ______________________ RANGE ____________

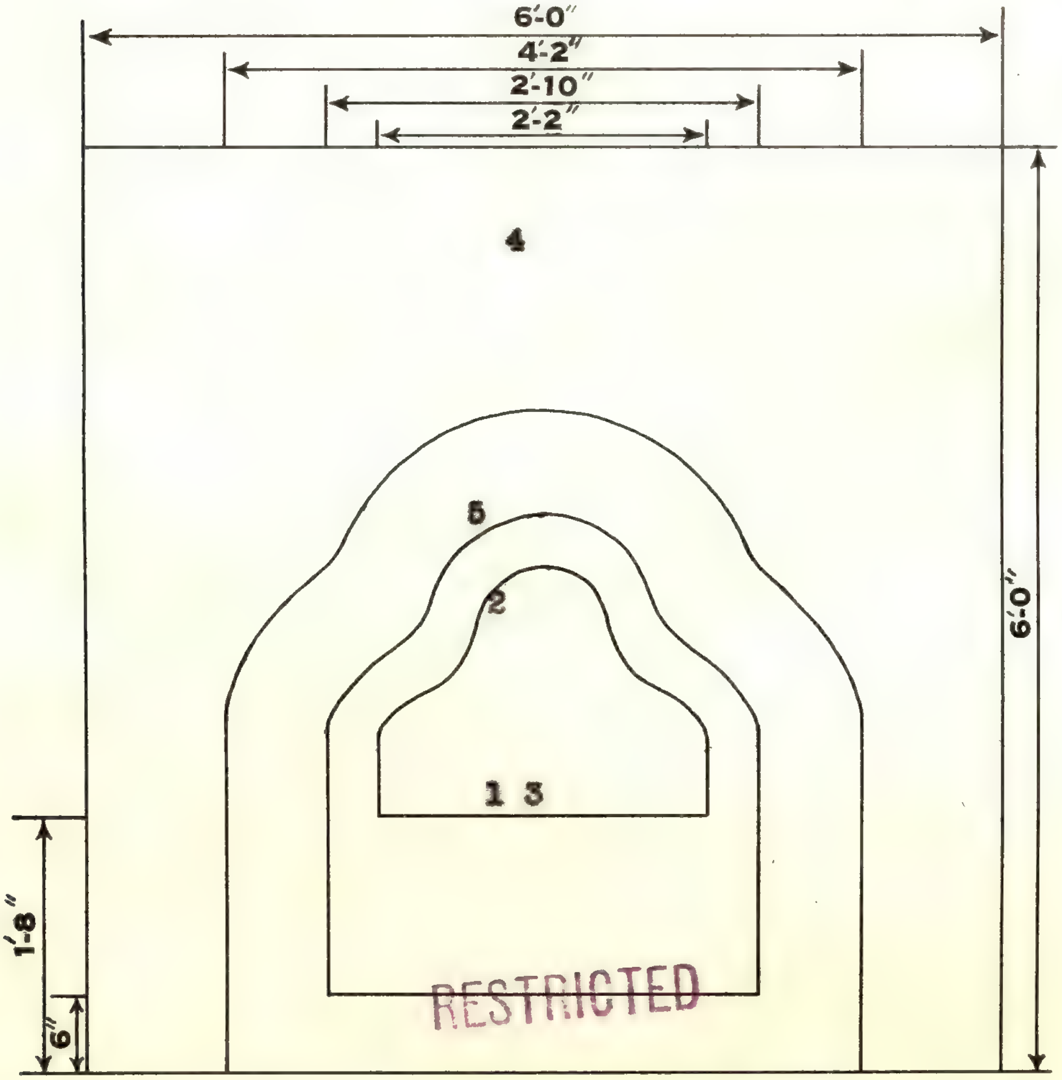
WEAPON ______________ TARGET NO. ________ ORDER NO. ______

AMMUNITION ______________ LOT NO. ______________

LIGHT ____________ WEATHER ____________ WIND { M. P. H. ________ / O'CLOCK ________ }

5'S	4'S	3'S	2'S	0'S	SCORE

VERTICAL DISP. ________ IN.
HORIZONTAL DISP. ________ IN.
MEAN RADIUS ________ IN.



RESTRICTED

TARGET D M T26E2
100 yds.

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RECOR… …IRING

TEST SECTION

THE INFANTRY BOARD

FORT BENNING, GEORGIA

______________ 19 ___

PROJECT ______________________________

NAME ______________________ RANGE ____________

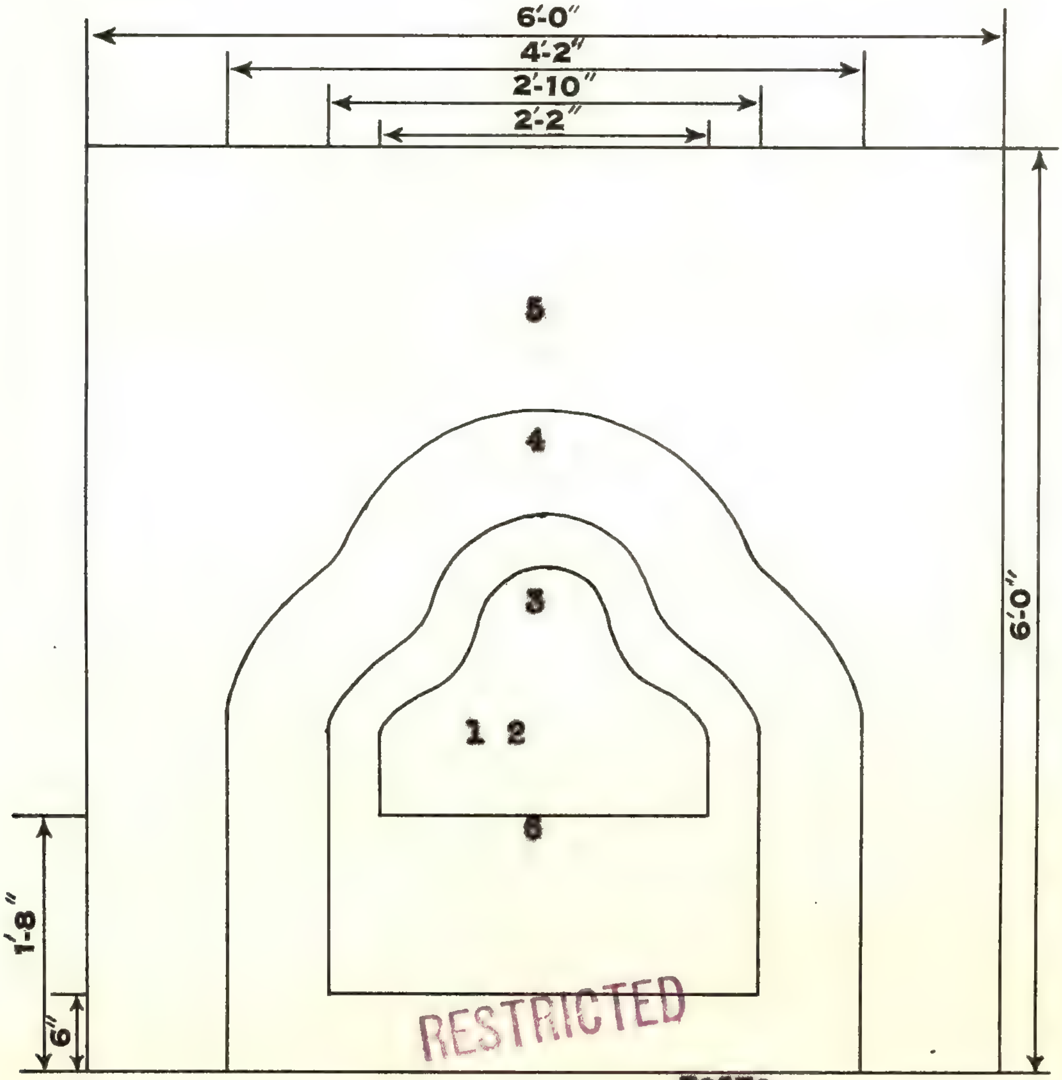
WEAPON ______________ TARGET NO. ________ ORDER NO. ________

AMMUNITION ______________ LOT NO. ______________

LIGHT ____________ WEATHER ____________ WIND { M. P. H. ________ / O'CLOCK ________ }

5'S	4'S	3'S	2'S	0'S	SCORE

VERTICAL DISP. ________ IN.
HORIZONTAL DISP. ________ IN.
MEAN RADIUS ________ IN.



RESTRICTED

TARGET D T26E2
150 yds.

DECLASSIFIED
Authority NND 735022
By DW NARA Date 9Dec22

R COR … RING

TEST SECTION

THE INFANTRY BOARD

FORT BENNING, GEORGIA

________________ 19 ___

PROJECT ____

NAME ______________________________ RANGE ______________

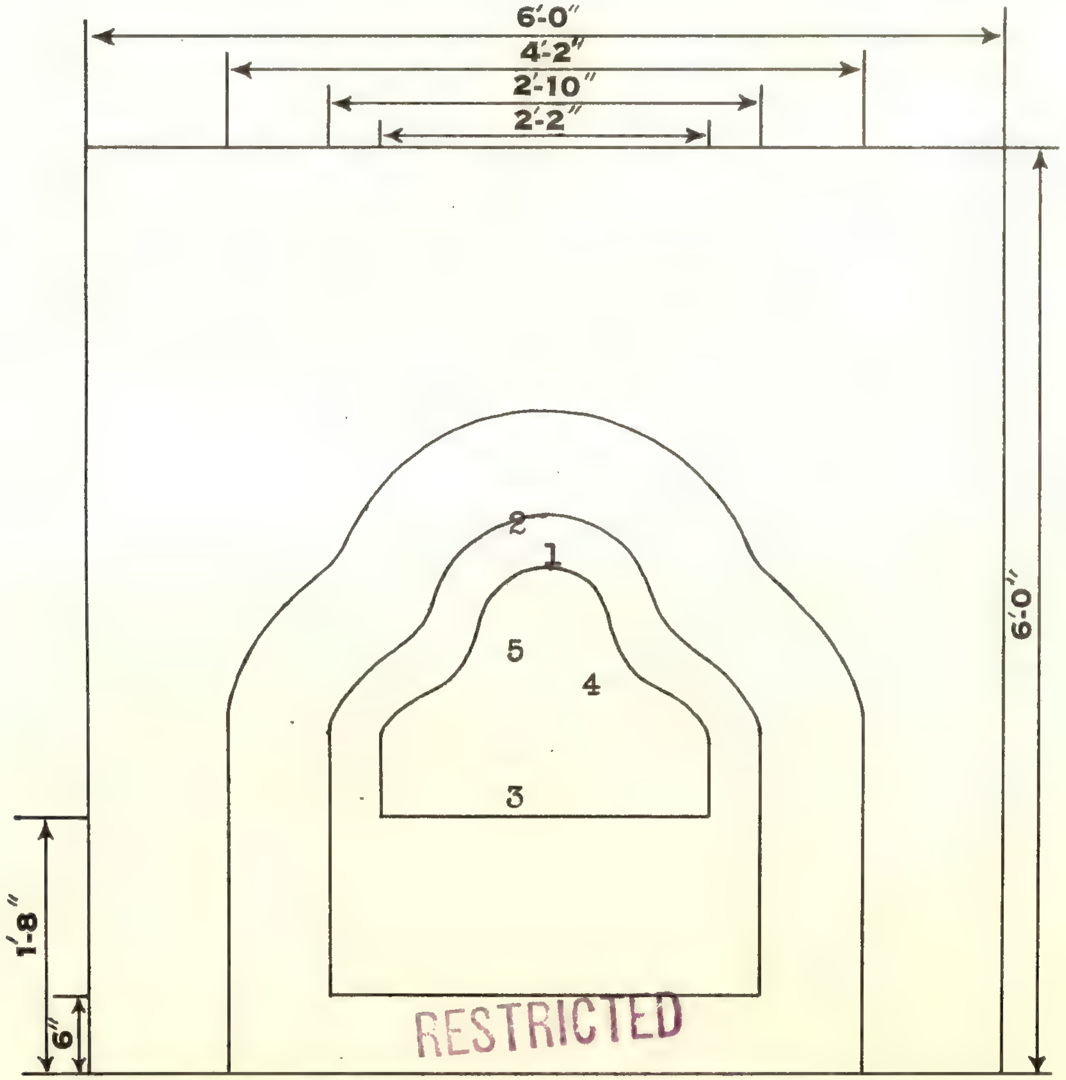
WEAPON ____________________ TARGET NO. ________ ORDER NO. ________

AMMUNITION ________________ LOT NO. ____________________

LIGHT ____________ WEATHER ______________ WIND { M. P. H. ____________ / O'CLOCK ____________ }

5'S	4'S	3'S	2'S	0'S	SCORE

VERTICAL DISP. ________ IN.
HORIZONTAL DISP. ________ IN.
MEAN RADIUS ________ IN.



RESTRICTED

TARGET D T26
50 yds.

DECLASSIFIED
Authority NND 735022
By DW NARA Date 9Dec22

R●COR ... RING

TEST SECTION

THE INFANTRY BOARD

FORT BENNING, GEORGIA

_______________ 19 ___

PROJECT ______________________________

NAME ______________________ RANGE __________

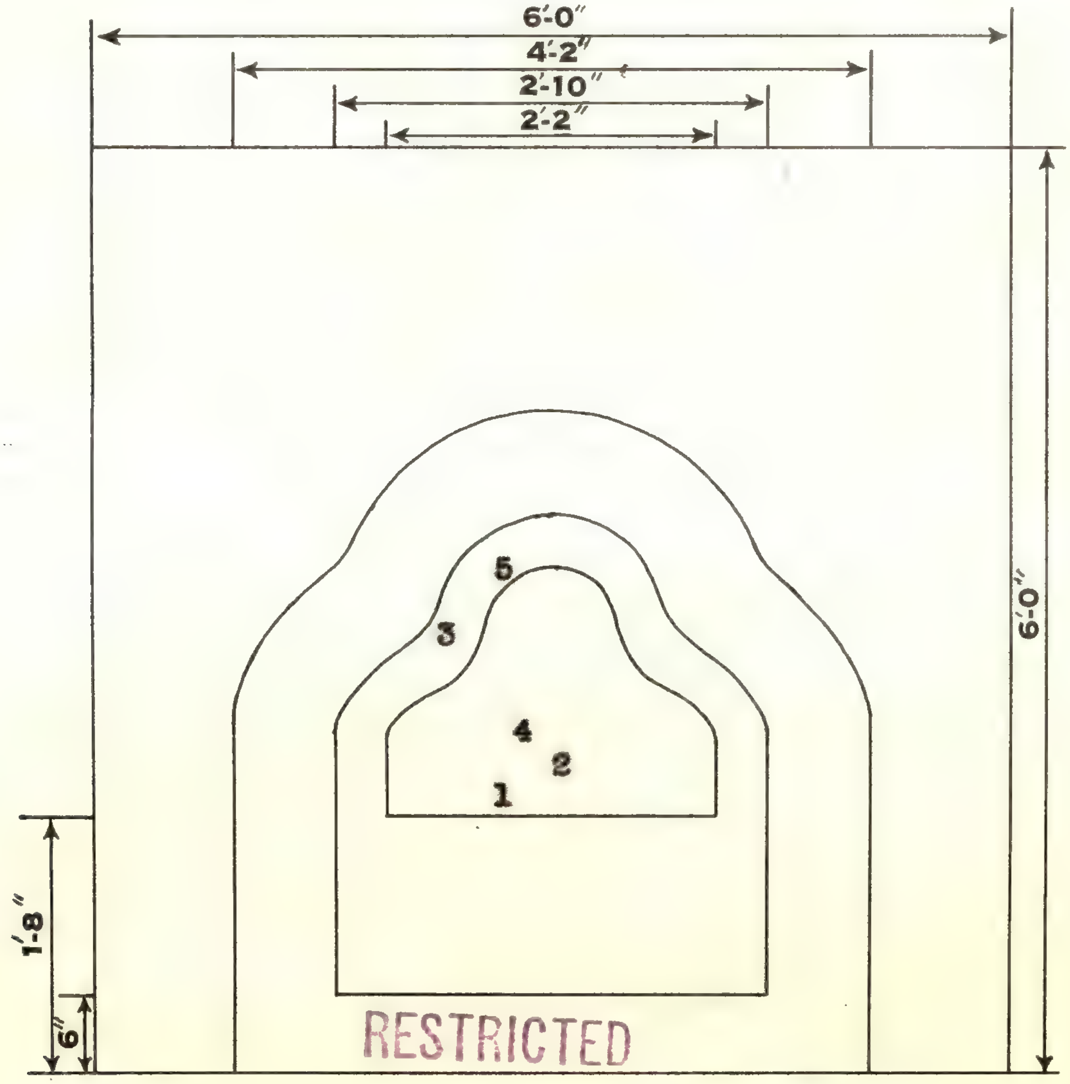
WEAPON ______________ TARGET NO. ________ ORDER NO. ______

AMMUNITION ______________ LOT NO. ______________

LIGHT __________ WEATHER __________ WIND { M. P. H. __________ / O'CLOCK __________ }

5'S	4'S	3'S	2'S	0'S	SCORE

VERTICAL DISP. __________ IN.
HORIZONTAL DISP. __________ IN.
MEAN RADIUS __________ IN.



RESTRICTED

TARGET D T26
100 yds.

DECLASSIFIED
Authority NND 735022
By DW NARA Date 9 Dec 22

RECOR[illegible] FIRING

TEST SECTION

THE INFANTRY BOARD

FORT BENNING, GEORGIA

______________ 19 ___

PROJECT ______________________________

NAME ______________________ RANGE ______________

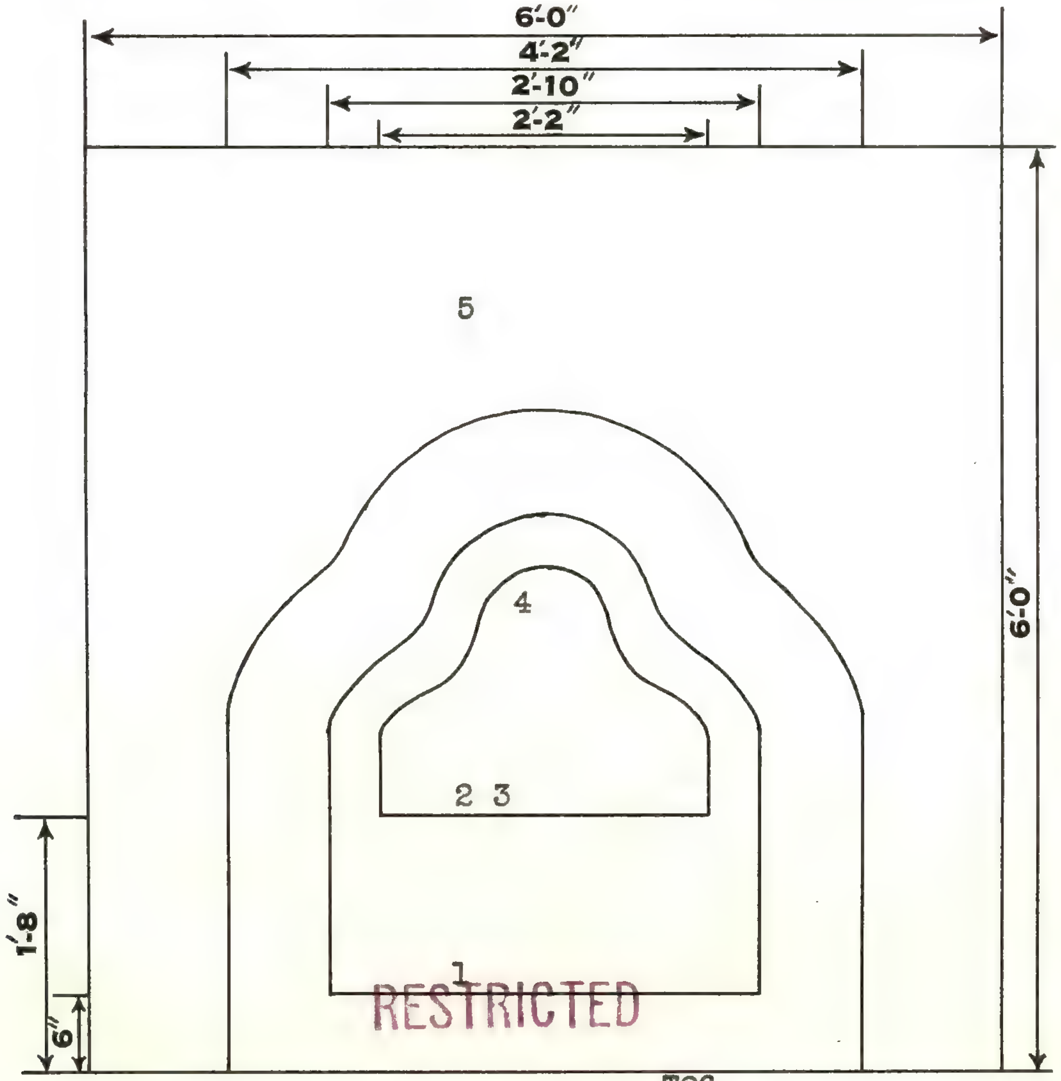
WEAPON ______________ TARGET NO. ________ ORDER NO. ________

AMMUNITION ______________ LOT NO. ______________

LIGHT ____________ WEATHER ____________ WIND { M. P. H. ________ / O'CLOCK ________ }

5'S	4'S	3'S	2'S	0'S	SCORE

VERTICAL DISP. __________ IN.
HORIZONTAL DISP. __________ IN.
MEAN RADIUS __________ IN.



RESTRICTED

TARGET D T26 150 yds

DECLASSIFIED
Authority NND 735022
By DW NARA Date 9Dec22

RECOR ... IRING

TEST SECTION

THE INFANTRY BOARD

FORT BENNING, GEORGIA

______________ 19 ___

PROJECT ______________________________

NAME ______________________ RANGE ______________

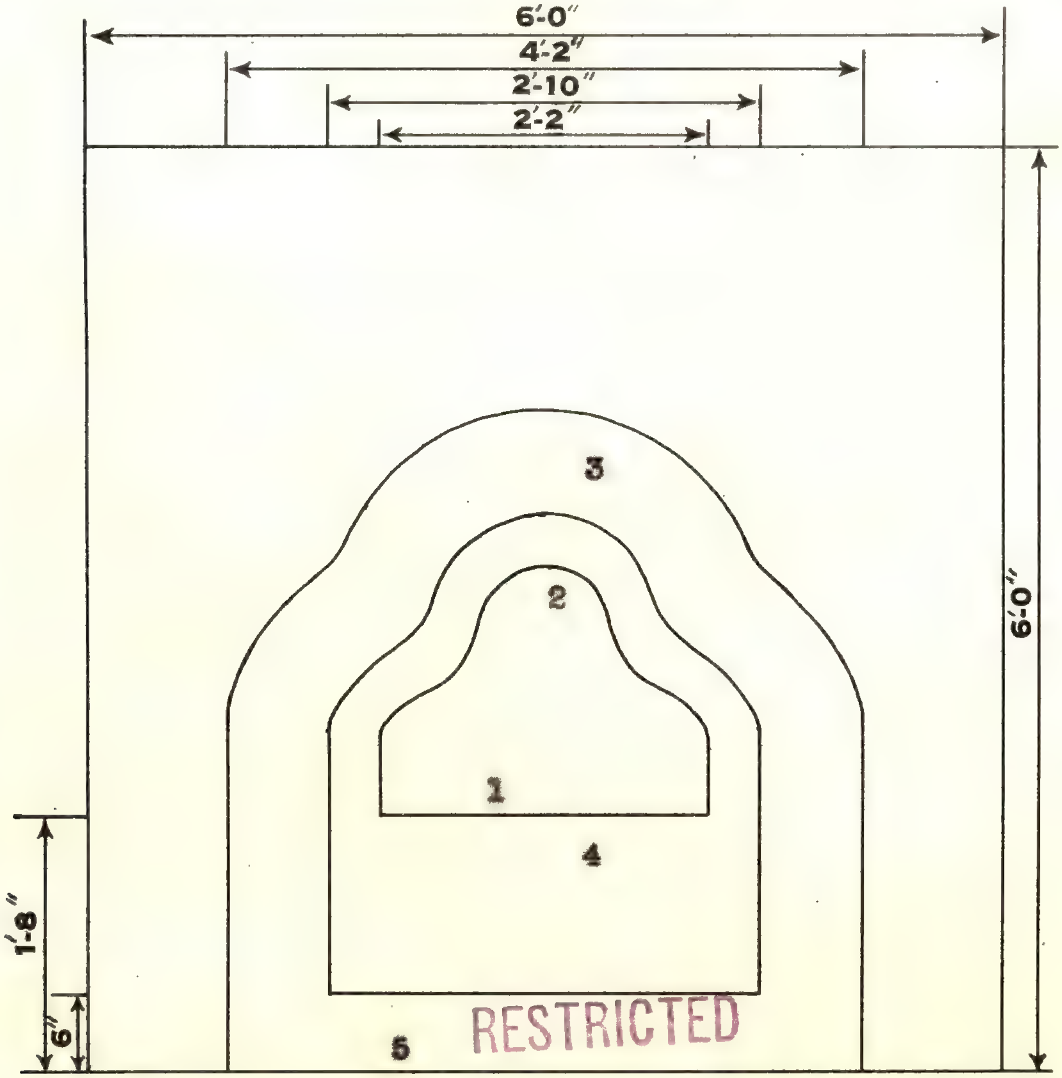
WEAPON ______________ TARGET NO. ________ ORDER NO. ________

AMMUNITION ______________ LOT NO. ______________

LIGHT ________ WEATHER ________ WIND { M. P. H. ________ / O'CLOCK ________ }

5'S	4'S	3'S	2'S	0'S	SCORE

VERTICAL DISP. ________ IN.
HORIZONTAL DISP. ________ IN.
MEAN RADIUS ________ IN.



RESTRICTED

TARGET D

M6A 1
50 yds.

DECLASSIFIED
Authority NND 735022
By DW NARA Date 9Dec22

RECOR[...]FIRING

TEST SECTION

THE INFANTRY BOARD

FORT BENNING, GEORGIA

_______________ 19 ___

PROJECT ______________________________

NAME ______________________ RANGE ____________

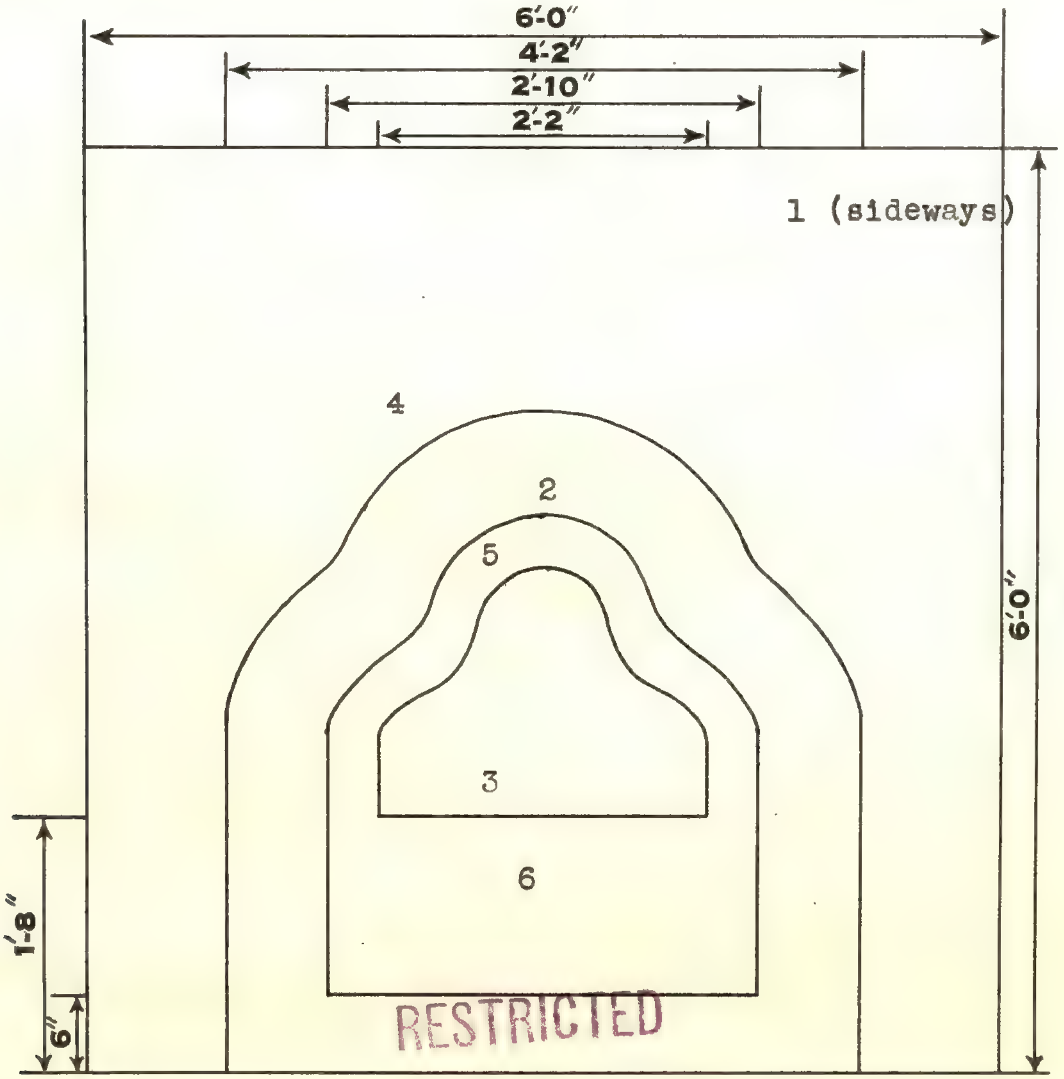
WEAPON ______________ TARGET NO. ________ ORDER NO. ______

AMMUNITION ______________ LOT NO. ______________

LIGHT __________ WEATHER __________ WIND { M. P. H. ________ O'CLOCK ________

5'S	4'S	3'S	2'S	0'S	SCORE

VERTICAL DISP. ________ IN.
HORIZONTAL DISP. ________ IN.
MEAN RADIUS ________ IN.



TARGET D

M6A1
100 yds.

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Authority NND 735022
By DW NARA Date 9Dec22

RECOR[D OF TEST] FIRING

TEST SECTION

THE INFANTRY BOARD

FORT BENNING, GEORGIA

________________ 19 ___

PROJECT ____

NAME ____________________________ RANGE __________

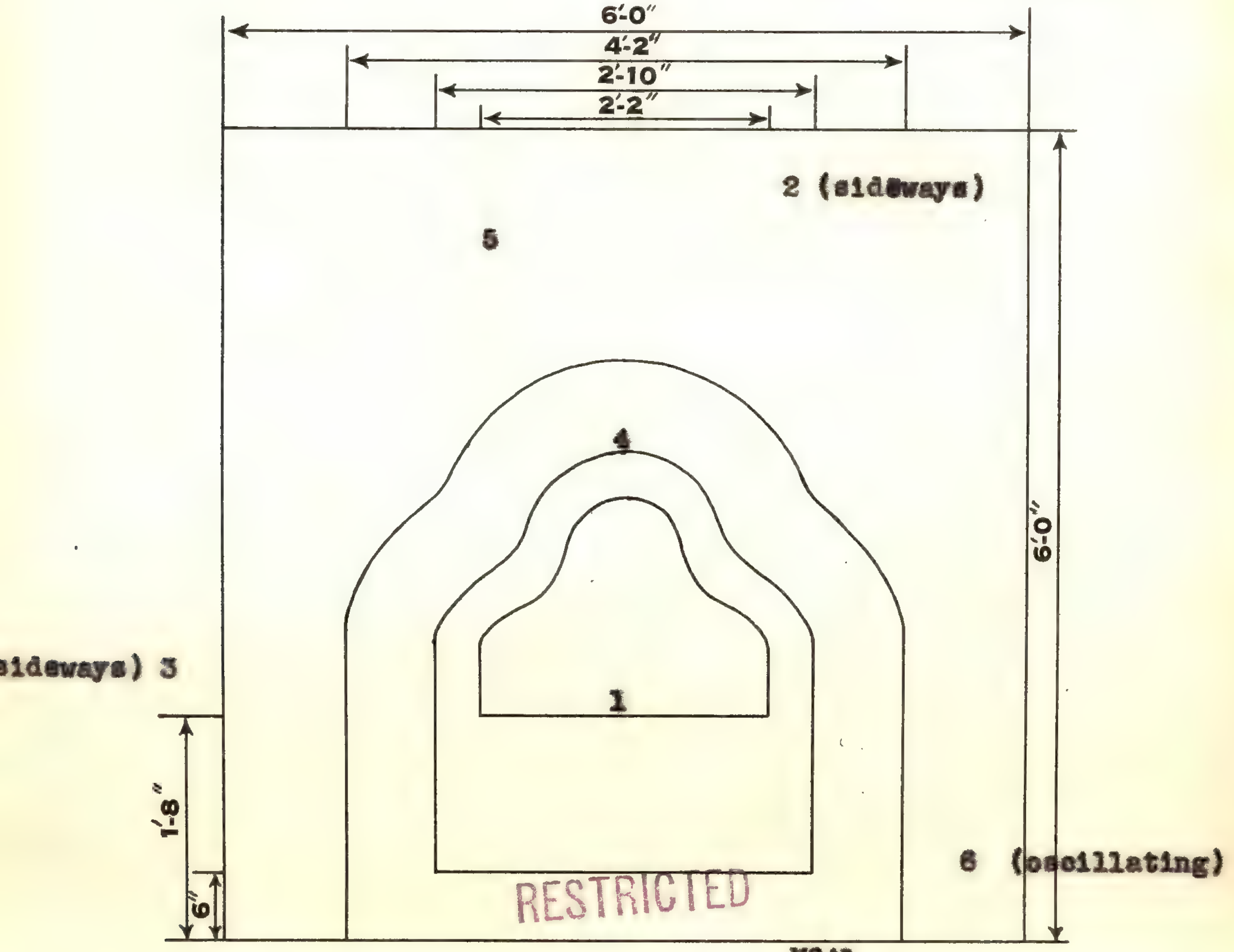
WEAPON __________________ TARGET NO. ______ ORDER NO. ______

AMMUNITION __________________ LOT NO. ________________

LIGHT __________ WEATHER __________ WIND { M. P. H. ________ O'CLOCK ________

5'S	4'S	3'S	2'S	0'S	SCORE

VERTICAL DISP. ________ IN.
HORIZONTAL DISP. ________ IN.
MEAN RADIUS ________ IN.



RESTRICTED

TARGET D

M6A1
150 yds.

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Test No. 5.

a. Purpose: To determine the relative dispersion of the four types of rockets when fired at long range.

b. Method: An M9 launcher fastened in a machine rest was set up and laid so as to hit a prepared area approximately 625 yards from the launcher. Rockets were fired alternately, i.e., one of each type rocket was fired in turn until a total of five of each had been shot.

c. Results:

(1) The flight of the rockets was observed from a point approximately midway between the launcher and the target area. The rockets in flight seemed to have the following characteristics:

(a) The T26E2 appeared to fly most smoothly, that is, no excess wobble or oscillation could be observed. In flight, the rocket head seemed to travel in a smooth, even curve with the tail bobbing slowly in short vertical arcs.

(b) The M6A3 resembled the T26E2 in flight except that the vertical bobbing was more pronounced.

(c) The T26 rocket wobbled in flight, the movement of the tail in relationship to the head was principally in a vertical plane although more circular wobble was present than in the T26E2 and the M6A3.

(d) The M6A1 appeared to be most erratic in flight, it wobbled from side to side and up and down, in some cases it appeared to be at almost right angles to the direction of flight.

(2) The effect of the wobble or bobbing of the rockets on the accuracy of the shot groups could not be ascertained. Rockets which looked erratic in flight might strike within a few feet of each other, while smooth flying rockets might be tens of yards apart.

(3) All of the rockets which were fired detonated satisfactorily.

(4) Shot groups for each type rocket are shown on Figures 18 through 22. A composite shot group of all rockets fired in this test is shown on Figure 22.

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(5) Group sizes and range to group centers was as follows: (All measurements in yards)

	Length	Width	Range
T26E2	28.33	4.33	674
T26	30.0	7.66	607
M6A1	56.66	5.33	618.33
M6A3	43.66	3.0	625

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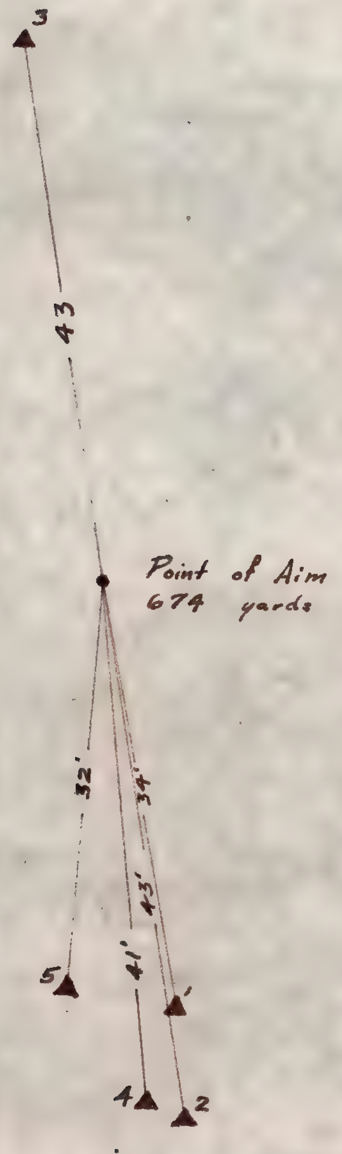

T26E2
Scale: 1" = 15'

Figure 18

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Figure 19

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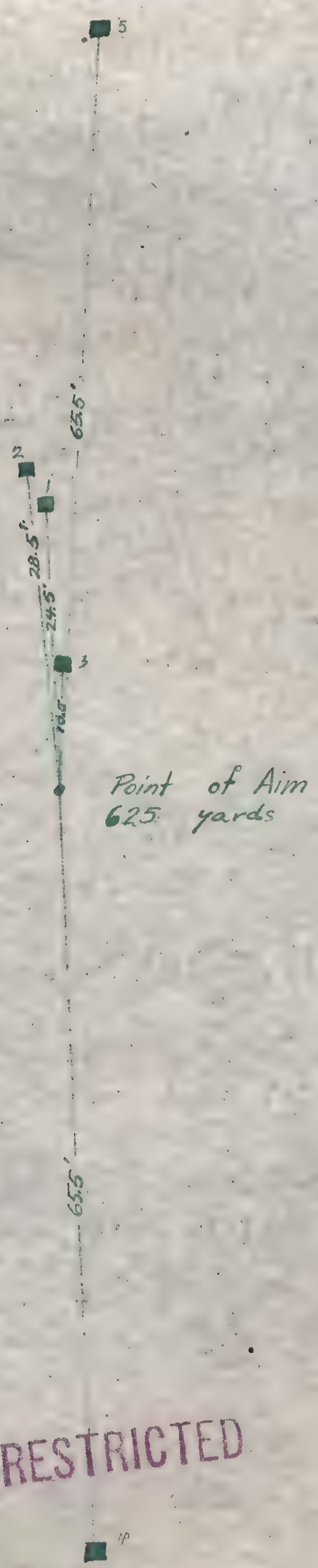

M6A3
Scale: 1" = 15'

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Figure 21

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Test No. 6.

a. Purpose: To determine the probability of hitting a small point targets (Example: Aperture of pill-box or bunker) at short ranges, using the T26E2 rocket.

b. Method: By study of the results of Test No. 4; also by firing, using various experienced men at 50, 100, and 150 yards at small targets, approximately 12" by 18".

c. Results:

(1) Many variables enter into an estimate of the probabilities of hitting a small point target. The munition itself is capable of hitting a small target approximately 60% of the time up to 100 yards. However, since 40% of the shots are erratic (generally laterally) a sight correction from shot to shot is not possible.

(2) If a launcher is properly sighted at an accurately estimated range, and sight corrections are not attempted from shot to shot, approximately 50% hits or near hits can be expected by experienced firers.

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Test No. 7.

a. Purpose: To determine the comparative reliability of functioning of the four types of rockets when fired at flat angles so as to strike only a glancing blow.

b. Method: Each type rocket was fired in turn with the launcher aimed the same at a flat, smooth field.

c. Results:

(1) Both W.P. rockets functioned more satisfactorily than did the H. E. rockets.

(2) All four of the rockets will ricochet if fired too close to horizontal onto a flat surface. However, only a slight obstruction, i.e., a small earth mound, or fold of ground will often detonate the W.P. rocket and not the H.E. rockets. No conclusive difference could be determined between the M6A1 and the M6A3 or between the T26 and the T26E2 in this firing.

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Test No. 8.

a. Purpose: To determine the comparative reliability of the four rockets when fired against vertical targets having a soft surface.

b. Method: All four types of rockets were fired into soft sand walls and loose dirt walls.

c. Results:

(1) The W.P. Rockets, although often deeply buried, would function in surfaces where the H.E. Rockets had failed.

(2) No difference could be seen between the T26 and the T26E2.

(3) The M6A3 functioned in soil where the M6A1 failed. The M6A3 sometimes functioned after penetrating half its length into earth in which the M6A1 had buried itself.

(4) The distribution of W.P. rockets is greatly reduced when fired into soft ground, but the functioning of the fuse is dependable.

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Test No. 9.

a. Purpose: To determine the difference, if any, between the backblast of the T26E2 and the other rockets.

b. Method: A controlled test was conducted with all types of rockets which had been packed in the same box for 24 hours. A launcher was fired through a paper screen 6' x 6' which was 8" in rear of the launcher muzzle. In addition, the test officer watched for evidence of backblast throughout all firing in the other tests.

c. Results:

(1) All rockets showed some evidence of backblast on the paper which was 8" back of the muzzle. No consistent or conclusive difference could be seen between the four types of rockets.

(2) No injurious backblast was noticed during all of the firing tests.

(3) All firing was conducted during warm to hot weather so excessive backblast was not a problem.

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5. Summary of Facts Determined by Tests.

a. The T26E2 rocket is 17 inches long and weighs 3.35 lbs as against 19 inches and 3.52 lbs for the T26 rocket. Test No. 1.

b. The fuzes of the T26 and the T26E2 rockets are equally sensitive and are more sensitive than the M6A1 or M6A3 fuzes. See Test No. 2.

c. Disassembly of the fuzes of the four types of rockets disclosed that the general construction of all the fuzes is related. Both W.P. fuzes are so designed as to be more sensitive than the H.E. fuzes. See Test No. 3.

d. The ring type tail seems to increase the stability of the rockets in flight. Shot groups for 50, 100, and 150 yards are plotted on figures 5 through 17. See Test No. 4.

e. When fired at long ranges the T26 rocket seems slightly more stable in flight than the others. Size of shot groups and range to center of each group was as follows: (See Test No. 5)

(1) T26E2 28.33 yds long, 4.33 yds wide at 674 yds.

(2) T26 30 yds long, 7.66 yds wide at 607 yds.

(3) M6A1 56.66 yds long, 5.33 yds wide at 618.33 yds.

(4) M6A3 43.66 yds long, 3.0 yds wide at 625 yds.

f. An experienced gunner can expect to get 50% hits on a small point target at short ranges. See Test No. 6.

g. The W.P. rockets are both more dependable in fuze functioning than are the H.E. rockets at flat angles. See Test No. 7.

h. The T26 and the T26E2 both surpass the M6A3 and M6A1 when fired into soft sand or dirt. See Test No. 8.

i. No difference could be discerned between the backblast of the T26E2 and the other rockets. Test No. 9.

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6. Test Officer's Discussion.

a. No outstanding improvement in either accuracy or functioning of the T26E2 over the T26 could be discerned throughout the tests. The T26E2 is as good as the T26 in all ways and slightly better in flight.

b. The fuse is sufficiently sensitive for all Infantry use to which the rocket has thus far been put. Because the fuze will function on a drop of approximately 3 feet some care in handling is essential; however, if the rocket is handled with only normal caution which should be accorded explosives it is perfectly safe.

c. A part or feature not specifically tested was the lead wire of the rocket. Throughout all the firing tests it was noticed that the wire on both the T26E2 and the M6A3 rockets is too short. The loader is slowed down because of the time lost in working with the wire to make it reach, and a number of failures to fire were traced to shorts between this wire and the fin where the wire had been pulled so tight as to tear the insulation in forcing it to reach the terminal spring.

d. One motor tube rupture occurred during the firing tests. The tube blew up and was split for its entire length. The propellant sticks did not ignite and the rocket dropped out of the launcher.

KENNETH D. SHELDON,
Captain, Infantry,
Test Officer.

I CONCUR IN THE ABOVE REPORT

WILLIAM C. RUTHERFORD,
Lt. Colonel, Infantry,
Chief of Test Section.

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